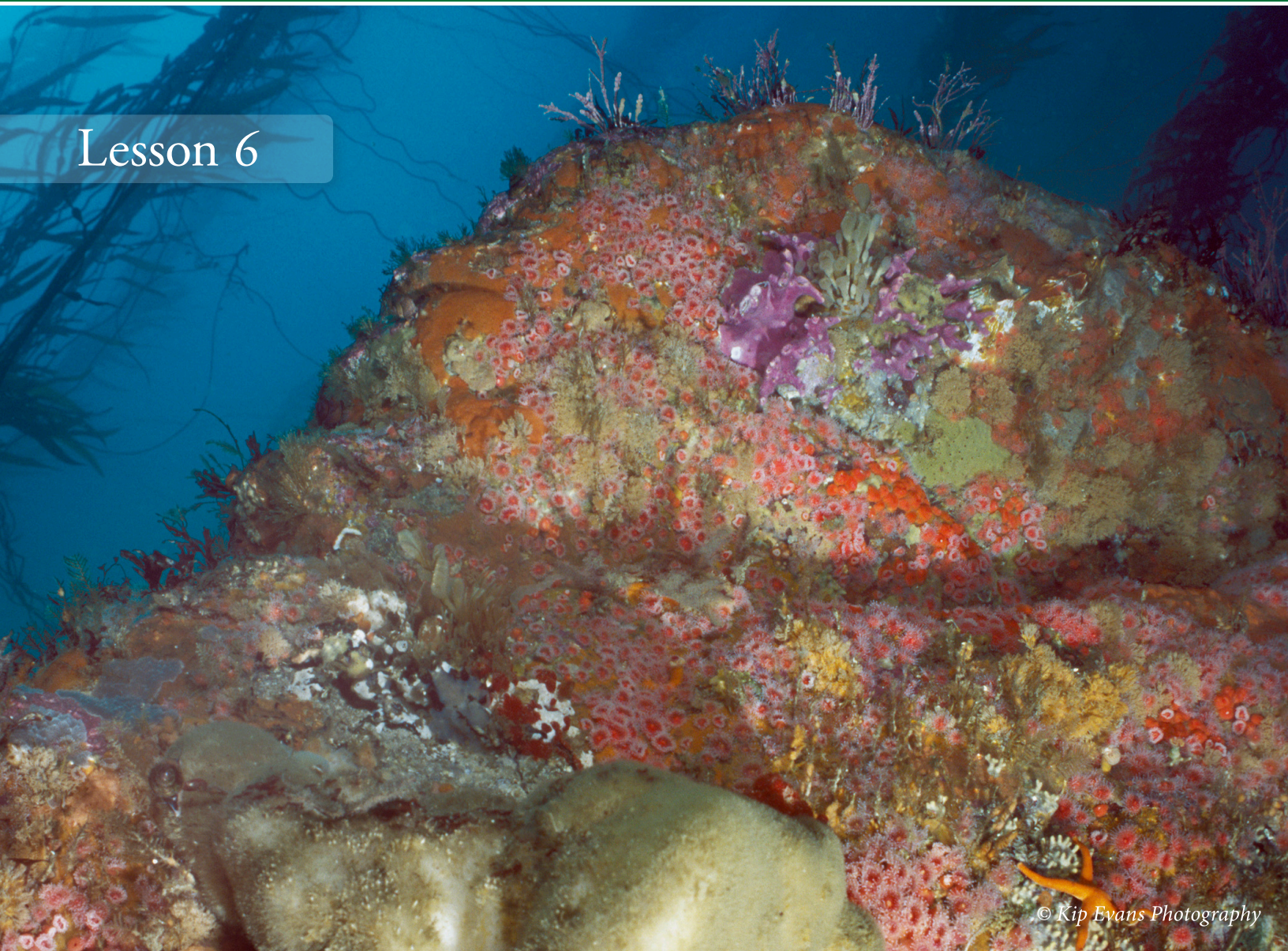


Lesson 6



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O Is for Ocean

In this lesson, students learn how the watery habitat of an ocean is different from other habitats with water. Students also learn how the plants and animals that live in the ocean meet their needs in this type of environment. The lesson reinforces the concepts of habitat and ecosystems as well as the idea that a habitat provides living things with what they need to survive.

This lesson also helps students understand that some of human basic needs are met through resources obtained from the ocean. By studying a map of California, students discover that many major cities are located

near an ocean. Other activities, including the development of a concept map, reinforce the idea of the ocean as an important resource for humans.

English-Language Arts skills supported through this lesson include

speaking audibly in coherent sentences to share information and ideas, using phonetically spelled words to write about people and objects, and following directions.

Learning Objective

List different habitats (ecosystems) that are found in mountains, rivers, oceans, valleys, deserts, and in their local area.

Name some of the plants and animals that live in their local area.

Identify resources (goods and ecosystem services) that people use in everyday life (e.g., food, air, water, clothing).



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like all animals that live on land, depend on their environment to meet their basic needs for survival—food, water (in this case to breathe and drink), and shelter.

Kelp is the world's longest algae. Kelp stems are anchored to the ocean floor with powerful roots called holdfasts. Kelp leaves reach upward to catch sunlight that penetrates the water. A kelp forest is home to many animals and thus helps them to survive. Kelp beds act as nurseries for the eggs of fish, jellyfish, sea urchins, crabs, and other creatures. Kelp is harvested for some food and other products used by humans (including ice cream and toothpaste).

People are drawn to the water. Many people vacation near the ocean and approximately 60 percent of the global population lives within 40 miles of the sea. Human activities such as fishing and shipping take advantage of the ocean's natural resources. Other ocean products used by humans include sea salt, minerals, sponges, and selected parts of plants and animals used to make medicines, paints, and fertilizers.

Background

California's longest border is with the Pacific Ocean. Not all oceans are the same, nor are all parts within an ocean the same. The ocean ecosystem is actually made up of many different habitats. Coral reefs are one type of **habitat** within the Pacific Ocean, but California does not have any coral reefs in its ocean ecosystem because the water is not warm enough. It does have reefs made of other materials,

providing habitat for many animals and plants.

Animals living in the ocean have many challenges; they must be adapted to ocean conditions. Most ocean life exists in the top 300 feet of water, where there is at least some sunlight. Other animals do live in the lower layers of the ocean, and some live on the ocean floor. Some animals live both in the ocean and on the shore. All animals that live in the ocean,



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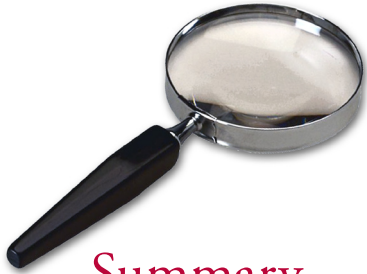
Key Vocabulary

Current: A band of water or air that flows in one direction without stopping

Habitat: The place where a living thing lives and meets its basic needs

Kelp: Any of the large seaweeds that grow in the ocean.

Toolbox



Summary of Activities

Students study a California map to identify where rivers enter the sea and locate major cities. They view photos of an underwater area, help develop a concept map, create an ocean mural, and gather information to determine whether they live near the ocean.



Instructional Support

See Unit Resources, page 20-21

Prerequisite Knowledge



- Students should be able to participate in a group discussion by relating comments to the discussion topic and listening to what others say.
- Students must be able to speak clearly enough to be understood by others.
- Students need to understand simple oral directions and be able to gather information from pictures.

Advanced Preparation



Prepare Visual Aids:

Produce materials as indicated in the Visual Aids section.

Create ocean mural:

Make and display the background for a large ocean mural (about 5 feet by 5 feet) on the wall of the classroom. Use different shades of blue to represent different water depths. This can be made by painting white paper or using different shades of blue paper. Do not add fish, rocks, kelp, or other elements since the students will be adding these.



Materials Needed



E Is for Earth books:

From Lesson 1

Class Supplies:

Blank paper, crayons, glue, scissors

Visual Aids



Big Book:

The World Around Me

Map:

Relief Map of California, page 93

Duration



Preparation time:

30 min.

Instructional time:

40-45 min.



Safety Notes

The scissors should be student scissors and students should be reminded how to handle them safely.

Activity Masters



Ocean Assessment Checklist

Page 91

One per class

Procedures

Step 1

Have students study the **Relief Map of California** (Lesson 2 Visual Aid). Identify the path of water from three major rivers flowing into the sea (i.e. Sacramento—San Joaquin Delta and San Diego River—Pacific Ocean. Trace with a finger (on the map) the flow of water from the melting snow of the mountains to where it enters the sea. Tell the students that once the water from a river enters the ocean, it moves into a very different environment. Most of the animals and plants that live in the water of a river cannot live in the water of the ocean; a very few, such as salmon and some sharks, can live in both ecosystems.

Step 2

Show students the “O Is for Ocean” page in *The World Around Me* (Lesson 1 Visual Aid). Have students describe what they see and what they know about the ocean. Encourage them to speak in complete coherent sentences. Write their descriptive words (salty, deep, whales, sharks, tides, waves, and so on) on the board. Introduce the following ideas as appropriate during the discussion: it is dark and cold in deep water, the ocean has bands of moving water called currents; kelp is the world’s longest algae with roots anchored to the ocean floor and leaves reaching upward to catch sunlight that penetrates the water; reefs—strips or ridges of rocks or sand near or above the surface of the water.

Step 3

Redirect students’ attention to the **Relief Map of California** (Lesson 2 Visual Aid) and identify five major cities—Sacramento, San Diego, San Francisco, Los Angeles, and Santa Barbara. Ask students if they live in or near one of these cities. Ask the students what they notice about where these cities are located. (*All but one, Sacramento, are located on or near the ocean.*) Ask students why they think so many big cities are by the ocean. (*People enjoy the ocean; people have jobs associated with the ocean, such as commercial fishing, shipping, and tourism; getting goods from other places is easy because they can be brought in by ship.*) Ask if students know anyone who works in an ocean-related job.



Step 4

Lead the students in a discussion about how parts of the ocean ecosystem are connected and how humans benefit from this ecosystem. From this discussion, develop an ocean concept map depicting some of the parts and connections of an ocean ecosystem. (See the example in *The World Around Me - Part 2*.) Be sure to include connections to humans and how humans use resources from the ocean. Use leading questions to stimulate student contributions:

- Do you see any animals in the kelp forest?
- What other animals do you see? What do you think they eat?
- Do we eat anything that comes from the ocean?
- Do you know of anything else people use from the ocean?

Step 5

Return students' individual *E Is for Earth* (Lesson 1 Activity Master) books. Have them turn to the ocean page and draw some parts of an ocean ecosystem (for example, fish, whales, seaweed, crabs, kelp). Have each student choose one thing drawn in the *E Is for Earth* book that he or she would like to add to the ocean mural on the wall. Have students draw the selected items on sheets of paper and then cut them out and paste them on the large ocean mural posted on the wall. Refer to what they drew as different parts of the ocean ecosystem. Have each student describe a connection between what they drew and some other part of the ocean ecosystem. Encourage them to speak in complete and coherent sentences.

Lesson Assessment

Instructions

Description:

Student assessment for this lesson is performance-based and is embedded throughout the procedures. The embedded assessment consists primarily of inquiry questions related to the EEI Learning Objectives. All students should participate in the discussion, and their individual responses should be evaluated for accuracy. Students should be asked to explain some of their ideas to check for any misconceptions.

Instructions:

Have students discuss the following one-on-one with the teacher or another adult prepared to assess students' responses and provide feedback:

1. Describe the major characteristics of an ocean ecosystem.
2. Identify some of the challenges living things face in an ocean.
3. Identify ways in which animals meet their basic needs in an ocean ecosystem.
4. Identify resources humans use from oceans.

Suggested Scoring

Use the **Ocean Assessment Checklist** (Lesson 6 Activity Master) to record students' performance.

Ocean Assessment Checklist (Lesson 6 Activity Master)

[illegible]